

Delaware, Lackawanna and
Western Railroad Pier No. 6: (Grain Trestle)
Lackawanna Railroad Yard
Jersey City
Hudson County
New Jersey

HAER No. NJ-50

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DRAWINGS

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

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HISTORIC AMERICAN ENGINEERING RECORD
DELAWARE, LACKAWANNA AND WESTERN
RAILROAD PIER NO. 6: GRAIN TRESTLE

HAER No. NJ-50

Location: In Erie-Lackawanna Railroad Yard, east of Henderson Avenue, south of 16th Street, north of 12th Street, on the Hudson River, in Jersey City, Hudson County, New Jersey.

UTM REFERENCES: 18/581788/4509162

Present Owner: City of Jersey City (Department of Housing and Economic Development)

Present Use: Abandoned

Significance: The remains of the Delaware, Lackawanna and Western Railroad Pier No. 6: Grain Trestle are significant because of the information they provide about grain and coal loading techniques of a major railroad; because Pier No. 6 was the only coal pier in New York/New Jersey Harbor in the first quarter of the 20th century; for the technology involved in incline and elevated pier construction; and for information about the configuration of a ca. 1900 freight yard of a major coal handling railroad in the New York/New Jersey Harbor.

Project Information: The Delaware, Lackawanna and Western Railroad Pier No. 6: Grain Trestle was documented by Louis Berger & Associates, Inc. for the Jersey City Department of Housing and Economic Development in 1985. The project team consisted of Jane Carolan, Historian and Rob Tucher, Photographer. Field Measurement and Drawings were executed by John R. Bowie, A.I.A., Consulting Architect.

Introduction

Built in 1905, the Delaware, Lackawanna and Western Railroad's Pier No. 6: Grain Trestle was the major grain handling pier in Jersey City, New Jersey in the first half of the 20th century. The pier presently consists of remains of a wood and metal trestle incline, a portion of the empty car return and a barney pit. The engine house providing the motive power for the cars is located beneath and south of the trestle (Plates 1,2,3,4,5,6,7,8, and 9). Within the engine house are two horizontal stationary steam engines that are largely intact and hooked in tandem to gearing that drives the cable sheave. Associated extant machinery includes brakes, a car location dial and steam controls (Plates 17, 18, 19, and 20). The elevated offshore pier (Plates 10, and 11) and its associated grain handling equipment, i.e. loading sheds, hopper, chutes and winches have been destroyed, though they were intact until at least 1977. Also destroyed was the adjacent steam plant just north of Pier No. 6 built in connection with Pier No. 5 the D, L & W's main coal pier in the 20th century. This supplied steam to both piers. (Personal Communication, Ed Rutsch, May 1983; Thomas Flagg, January 1985).

In operation until 1965, the pier was primarily used for grain but was capable of being a back-up for the adjacent coal pier No. 5. In the 1930's bulk cement was also unloaded and shipped from Pier No. 6 as were corn grits and salt in the 1950's (Burwell 1953).

The complex is located in the Erie Lackawanna Railroad Yard, which was originally the D, L & W yard until a merger between the two railroads in the 1960's. The yard sprawled over the Hoboken/Jersey City line but was always referred to as the Hoboken Yard. All the trackage and railroad related buildings have been demolished, vandalized, or destroyed in fires since the yard closed in the mid-1970's. Pier No. 6 is one of the few standing structures remaining in the yard. Other extant structures include Piers 7, 8, 9, and 10 (Taber 1980:442).

History of The Delaware, Lackawanna & Western Railroad Freight
Yard, Jersey City, New Jersey

The Delaware, Lackawanna & Western Railroad had its beginnings as the Liggett's Gap Railroad which was incorporated April 7, 1832 but did not begin service until 1851, when the name was changed to the Lackawanna & Western Railroad. In 1853 the railroad merged with the Delaware and Cobb's Gap Line to form the Delaware, Lackawanna and Western Railroad (Condit 1980:68-69; Murphy 1928:98).

The D, L & W was established to transport anthracite coal from the mines around the Scranton, PA. area to the market areas on the East Coast. In addition to hauling coal the railroad also operated its own mines and breakers in and around Scranton. In ca. 1853 the railroad purchased its first mine, the Diamond, and a breaker was constructed near the mine to process the coal. During the 1860's and 1870's the D, L & W bought up a number of mines north and west of Scranton, ensuring their success and certainly keeping their coal cars full (Murphy 1928:98-103).

By 1857 the line, with the leasing of the Warren Railroad, crossed the Delaware River and reached western New Jersey, and in 1862 reached the shores of the Hudson at its present location, at the southern edge of Hoboken and the most northern edge of Jersey City, New Jersey. Throughout the second half of the nineteenth century the railroad had an aggressive expansion program so that "...the Lackawanna had constructed the trackage of its own and absorbed other properties (including the Morris & Essex, 1868; Passaic & Delaware, 1882; Morris & Essex Extension, 1889, Lackawanna Railroad of New Jersey, 1911; Sussex Railroad, 1924) that together took it northwestward to Buffalo and connections with the Nickle Plate Road and the Michigan Central and northward from the anthracite fields to Utica and Syracuse, New York" (Condit 1980:68-69). The railroad was at its peak, financially and technologically, in the first quarter of the 20th century. Coal was profitable; it was the dominant fuel in use in the early 1900's and railroad passenger and freight traffic was at its height. In 1900 earnings were 20 million dollars. By 1920 they had leaped to 88 million dollars. But in just seven years, as the result of changing consumer patterns and a nationwide depression, earnings faltered; in 1933 the railroad's income was reduced by 50 percent; no stock dividends were paid between 1930 and 1948. "... as the 1930's drew to a close, the company still had it's pre-depression debt and two principal elements of its traffic structure, anthracite and passengers, already showed signs of permanent erosion; anthracite from competing fuels and passengers from the automobile "(Saunders 1971:309). In 1955 Hurricane Diana destroyed 75 miles of track in Pennsylvania effectively wiping out the railroad financially. On October 15, 1960 the Erie and

the D, L, & W merged, in a desperate attempt by both railroads to stay alive (Saunders 1971:337). In the early 1970's the line was taken over by Conrail, but the yard finally closed in the mid-1970's (Taber 1980:442).

The History of The Delaware, Lackawanna and Western's Hoboken
Freight Yard

In 1862 the Delaware, Lackawanna & Western Railroad constructed a freight and passenger terminal in Hoboken at the site of the present terminal. In 1879-80 this facility was replaced. The new yard contained a passenger terminal and train shed on the site of the former one. Five ferry slips handled the ferries taking passengers across the Hudson River to New York City. Just south of the passenger terminal was the freight yard (Plate 22) which ran from 12th Street to 20th Street.

In addition to a round house and ship canal there were twelve piers. As described by Taber (and seen in Plate 22) (1980:427) five were elevated trestle piers (Nos. 6 - 10) used for handling the railroads primary product, anthracite coal. Pier No. 1 was reserved for immigrants bound for Ellis Island; No. 2 was a covered freight pier; Nos. 3 and 4 were used for "general merchandise," No. 11 for grain; and No. 12 for merchandise. Two transfer bridges were located between piers No. 2 and 3; these were later moved between Piers 10 and 11. The trestle piers were of the same construction as that of the pier under investigation, the present Pier No. 6.

During the last fifteen years of the 19th century the D, L & W was the leader among New York Railroads by virtue of the rapidity with which freight and passenger traffic volume continually increased. By the end of the century, though, the railroad's infra-structure was weak and it was during this time that management began an aggressive planning and construction program throughout the line, that included relaying track and upgrading a number of its facilities (Condit 1980:168-169). Among the plans on the boards, were those that would establish the railroad as the "...vanguard of 20th century railroading" (Condit 1980:169). With its high coal profits the company had enough money to "...build one of the most technically refined railroads in the world (Saunders 1971:308). Because of this, Condit suggests that the railroad "...possessed some of the most impressive structural achievements of any rail carrier" (Condit 1980:169). Ironically, on May 29, 1904 a fire which began on a barge docked at Pier 12 in the yard, destroyed Piers 9 - 12 and the float barges (Railway Age June 3, 1904; Taber 1980:427). In addition to these piers, Pier No. 8 was destroyed (Engineering News Record, June 2, 1904, p. 428). In August 1905 the wooden passenger terminal and ferry slips were also destroyed by fire. (New York Times, August 8, 1905:1) In addition to the six piers destroyed, 100 freight cars were lost along with their contents and forty

barges. Arrangements were made to use the adjacent Erie piers for freight and the Delaware & Hudson's coal pockets in Weehawken, New Jersey. The railroad announced that it would begin rebuilding at once (Railway Age June 3, 1904). It took eight years to finish the terminal and the yard. By 1912 the yard was essentially complete and the only additions were a freight warehouse completed in 1929 and Pier 10 completed in 1930. The new piers were renumbered since the passenger terminal in addition to being rebuilt underwent a badly needed expansion which took over the site of former Pier Nos. 1 and 2. Original Piers 3 and 4 were numbered 1 and 2. The five coal piers, Old No. 6 - 10 were removed and their operations consolidated in Pier No. 5 which had two McMyler dumpers, one of which had been on old Pier No. 10, but was not damaged in the fire. A second dumper was added when the pier was rebuilt. New Pier No. 6 was the only trestle pier in the new yard and was originally planned for coal and grain dumping. In 1908 to 1909, Piers 7 (covered) and 8 (open) were built, and Pier 9, also covered, was completed in 1911. The yard remained in this configuration until the construction of the most southern pier, No. 10 in 1929. The new yard worked as follows: Piers No. 1 and 2 were open piers used for merchandise; these were serviced by gantry cranes. Piers 3 and 4 were actually a double covered pier used for storage and steamship unloading. Pier No. 5 was the coal pier, Pier No. 6, coal and grain. Piers No. 7 and 9 were used for loading covered barges primarily with food products and Pier No. 8 was an open lighterage pier. Six transfer bridges were located between Piers Nos. 6 and 7 (Taber 1980:424,427).

The yard remained in this configuration through the 1970's. Loss of business because of a switch from coal to oil, containerized shipping and trucking, and airplane and car travel forced the railroad, already merged with the Erie in 1960, to be taken over by Conrail in the early 1970's. Since the mid-1970's the yard has been abandoned. Trackage has been removed and Piers 3, 4, 5, and 6 have been destroyed by fire. Little of the yard, except for a portion of Piers No. 6, 7, 8, and 9, remains today.

History of Grain Handling in the Port of New York

The D, L, & W yard was primarily devoted to coal handling yet grain was one of the "...most important single elements of commerce handled at the Port of New York" (NY NJ Port and Harbor Development Commission 1920:408). The majority of the grain handling facilities in the second half of the 19th century and the early 20th century revolved around grain elevators, the earliest of which were constructed in Brooklyn, NY by the 1880's. In the mid-1870's, railroads began to dominate the grain market and built elevators of their own. "Between 1876 and 1881 the New York Central, Erie and Pennsylvania Railroads built four large grain elevators in Manhattan and Jersey City, with total storage capacities of about 5.3 million bushels (Flagg et al. 1984:4). By the 1920's within New York harbor there were six elevators and Pier No. 6, owned by the railroads; six smaller privately owned elevators and a fleet of floating elevators (NY NJ Port and Harbor Development Commission 1920:408,411).

Eventually the railroads increased their use of canal boats and large barges for temporary storage before transfer to large ships thus eliminating the need for elevators. By the 1920's the practice of free lighterage within the Port from tidewater allowed liners to dock anywhere in the port and receive varied cargo, thus encouraging grain facilities designed for barges and lighters (Flagg et al. 1984:5). This remained the preferred method of handling though the 1930's when grain traffic greatly slowed in the harbor due to a large elevator in Albany, NY, the Depression, and eventually the completion of the St. Lawrence Seaway (Taber 1981:442).

Description of Pier No. 6

Pier No. 6 consists of a series of evenly spaced timber trusses supporting tracks which rise in a steep incline to a fixed height level, immediately before extending over the water on the pier where the pier then slopes down and up again. A brick engine house is located under the incline section of the track. A metal plate transfer grid is located at the point the incline passes over the engine house.

Pier No. 6 was designed with four tracks, two tracks running through open sheds carrying loaded cars, one small gauge track for the barney car and an empty, or return car track on the outside of the sheds. The sheds one-story high, open at both ends, were wood frame covered with steel siding. The western most shed measured 27 X 75 feet with a capacity of three cars, while the two eastern most sheds were both 25' X 100' long with a capacity of four cars.

The pier has been categorized by Greimer as a "... power incline at shore end with a gravity return from sea end" (Greimer 1913: 1773). Full cars were mechanically pulled by the barney car, which was attached to the cable, to the top of the incline where the cars coasted to hoppers. After dumping, the cars then traveled to the river end of the pier and up a slight rise at the end to check their momentum. The empty cars were switched to the return track where they coasted back to the yard; barneys were pulled back to the pit by the cable. The speed of the freight cars in this system was controlled by compressed air, which ran a metal bar that squeezed against the inside of the car wheels.

The hoisting engine house is a rectangular, shed roofed, nine course common bond, brick structure. The roof, which may have been replaced, is corrugated metal. The north and south elevations are mirror images of each other with three windows, which were 6/6 double hung sash, and an arched double wooden door. All openings are segmentally arched. Two small half-circle openings on the east and west elevations allow passage of the cable from the drum to the trestle.

Inside the engine house are the remains of two tandem, reciprocating, stationary steam engines coupled together to a cable sheave. Depending upon its direction of rotation, the cable sheave either pulled in the wider diameter steel cable and simultaneously let out the narrower cable (which hoisted the barney car with the attached box car up the trestle), or vice versa (which lowered the empty barney car back down to the pit at the foot of the trestle). This directional change was accomplished by moving a lever switch (floor mounted; engineer operated) which

changed the direction of the stroke of the engines and hence the rotation of the cable sheave. A chain driven locator dial was calibrated to show the location of the barney car on the trestle.

The brake consisted of two leather belts which circle the cable sheave extension. A level switch which was mechanically linked to an eccentric rod in the brake housing tightened the belts against the cable sheave extension, when thrown. When released, the bottom belt fell away by gravity and the top belt was pulled away by a spring rod that attached at the ceiling. Boats were loaded only from the north side of the pier as the south side was immediately adjacent to the D, L, & W transfer bridges and their trackage (Plates 12,13,14,15,16,17,18,19,20, and 21)(Personal communication Thorwald Torgersen, January 1985; John Bowie April 1985).

The pier contained ten chutes used for loading grain, cement or corn grits into barges. Receiving hoppers were located in each shed; between the tracks. Grain was off loaded with a power shovel from box cars into hoppers through the chutes which were usually timber, lined with metal, into waiting barges. The pier had a 100 - 150 car capacity per 10-hour day (Plate 27)(Taber 1980:430; Personal Communication Tom Flagg 1984; NY NJ Port and Harbor Development Commission 1920:415).

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